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ABSTRACT

Many different courses are offered at the college level to promote critical thinking. Teachings in critical thinking without a proper reflection on methodological foundations can be useless. Reflection upon inductive and deductive methodologies of thinking is necessary to the development of critical thinking abilities. It must be remembered that the aim of critical thinking education is to advance effective thinking, productive thinking, creative thinking, and problem solving. Future efforts in the area of critical thinking education should focus on questions of value and value judgments, distinctions between reality and ideologies used to explicate reality, an understanding of the evolutionary nature of rationality and methodology, and the role of philosophy in the teaching and learning of critical thinking. (TJH)

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METHODOLOGY AND CRITICAL THINKING

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Many different courses have in the past been offered on the college level to promote critical thinking.[1] Courses such as first-year logic, informal logic, art of thinking, scientific methodology, thinking and problem-solving, and so on, come to the fore. In fact, many introductory courses in philosophy, psychology, sociology, economics, physics and biology, business and management, and even computer science and medicine, with strong emphasis on the traditional liberal arts educational value or with unmistakable general education tune, may all be regarded as providing ground-work for the development of critical thinking.

The aims of designing and offering these courses seem clear and obvious enough. Positively, this is to teach the college students to arrive at more creative and productive ways of life without falling into some epistemic and/or socio-cultural restrains and prejudices. Negatively, to teach them how to engage in thinking (analyzing, reasoning and theory constructing, etc.) without committing methodological mistakes. These two aims go hand in hand, of course. And quite often the demarcation is

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more or less a matter of degree. The latter is thought of as paving the way, to say the least, to the former. Let me therefore begin with this "preventive" side of critical thinking. The emphasis on the identification, analyzing and prevention of methodological mistakes or fallacies.

Courses to develop critical thinking could be taught rather dogmatically and aimlessly without adequate recognition of their purpose and consciousness of their significance. For instance, there are so many informal and formal fallacies listed and explained in introductory logic textbooks without explicating to our satisfaction why is it necessary or desirable to avoid fallacies, while committing them does not entail the falsity of conclusion or even the invalidity of arguments.[2] It is one thing to advise that we try our best to avoid the methodological mistakes and quite another to conclude the undesirability of falsehood, inconclusiveness and invalidity.

Speaking on a more general level, teaching of critical thinking without a proper reflection on methodological foundations can be useless. Indeed it could be a dis-service. Logic, or for that matter, any other courses to promote critical thinking, could not go very far without running into cognitive predicaments. For instance, not just inductive logic appears weak in its theoretical foundation, deductive logic fares little better provided that infinite regress and circularity are both

theoretical evils in the methodology of thinking.[3] Reflection upon the methodology of thinking is therefore necessary in the development of critical thinking.

In recent years, the author has been trying to bring the teaching of critical thinking up to a higher level than it normally stands. In addition to the teaching of the standard logical principles of reasoning and the identification and explanation of common methodological mistakes or fallacies (stressing all the way that the mistakes are methodological), we dig very quickly into the very soil of methodological foundation.

If we realize the fact that the purpose of promoting critical thinking has a positiver character, namely, to advance effective thinking, productive thinking, and creative thinking, and above all, to encourage an affirmative attitude towards the will and courage to think and motivation and determination to problem-solving (these should not be taken for granted too readily), then of special importance in this age of non-commitment, indecision and non-belief, particularly with respect to question of value and that of belief and faith, we should not let ourselves get lost in the jungle of our teaching. In particular:

(1) Questions of value (or the problem of value judgments) need to be addressed more explicitly and directly than before, together with the question of fact or factual judgments. Let it be shown clearly and emphatically that the mechanisms of justification in the area of factual beliefs and those in the sphere of value beliefs are different only in details and complexity, not in essence and in kind. For instance, they all in the final analysis begin with, or rest upon, some postulates or axioms or basic assumptions and presuppositions and commitments. Methodological skepticism is as effective in cognitive fields as it is on value matters and personal commitments. In fact, critical thinking is most needed only when we are prepared to have epistemic and/or value commitments.

(2) The identification of reality and the use of "ideologies" (in a wider sense) as approaches to, or ways of, explicating reality should be sharply distinguished. When we say, for instance, human minds can be treated <u>as</u> computers (computational theory of mind), we choose one way, for better or for worse, of looking at "things". It is not necessarily <u>the</u> way to reality. Let A be treated <u>as</u> B should be distinguished from A <u>is</u> B. A truth is not necessarily the whole truth. And what is instrumental should not readily be taken as essential. Let these distinctions be clearly aware of and the importance fully appreciated.

(3) At this juncture, the author finds it most illuminating to bring to the attention of students the very problem of the foundation of methodology and the derived problem concerning human rationality. The author adopts an evolutionary view of human rationality and contents with a working foundation of methodology of thinking that keeps evolving at a certain stage in the history of human development. To say it explicitly, there is no incorrigible set of rules or principles that can be termed the foundation of methodology of thinking. Methodology is to serve our inquiry, research and problem-solving. It evolves in direct relation with our purpose of thinking. The choice among traditional logic, modern standard logic, alternative logics, fuzzy logic, and so on, can all be looked at in this light. Methodological pragmatism is very much to be preferred.[4]

(4) Evolutionist view of human rationality indicates, if not entails, a position which may be called methodological evolutionism. We refine our methodology through our experience in thinking and problem-solving (although we are not committed to the choice of the most refined methods under any particular circumstances. We appeal to pragmatic considerations in the choice of methodology). However, methodology can be understood in various different senses with reference (denotata) on quite different levels. Broadly speaking, on the more general end of the spectrum it can be taken to mean some sets of very general principles justifying the ways of thinking and reasoning, and on

the other end, it can mean very specific steps or procedures in certain kinds of endeavorings. Methods, in the most specific sense, can be different and divergent even though our purpose remains the same. Pluralism is certainly no evil on this more specific level of methodology. The point is, even on higher level or levels, methodogical pluralism is something to be taken seriously if we are prepared to tolerate methodogical evolutionism.

(5) At this point, it seems timely and appropriate to consider the role of philosophy in the teaching and learning of critical thinking. The re-assessment of philosophy in this context is both important and urgent because the discipline has since the turn of this century become less relevant to our daily life and regular problem-solving and decision-making. Does philosophy system building mean little more than conceptual exercises or linguistic games? Not necessarily. In learning the art of critical thinking, we can cogently treat philosophy <u>as</u> methodology, the methodology of thinking. It exemplifies, for instance, how reality can be thought of, or human mind looked at to the best of our knowledge and capability. The system building in this connection is not void of reference in, and relevance to, the world, the society and the humanity. Philosophy <u>is</u> methodology. It is methodology in the most general sense while

there being methodologies of each discipline and every endeavoring of various levels. Philosophy is the methodology of thinking.[5]

To conclude, courses to stimulate, or to reflect upon, critical thinking should now be conducted on a higher and more sophisticated level. We should not just teach and learn the technology of problem-solving but also the philosophy, namely, the methodology of thinking.

Notes

1. In the Chinese language, the term 'critical thinking' (pi pan hsin szu kao, 批判性思考) is comparatively a rather late addition to the vocabularies of the methodology of thinking, because the word 'criticism' (pi ping, 批評) in Chinese often carries the derogatory import of reproval or fault-finding. On the other hand, two related terms 'independent thinking' (tu li szu kao, 獨立思考) and 'freedom of thinking' (tzu yu szu hsian, 自由思想), particularly the former, have gained their currency since the early decades of this century. Independence, that is, of pre-emptive doctrines, and freedom from dogmas and orthodoxism.

2. One who commits a fallacy may arrive at a truth (although one does not arrive at a truth by commiting a fallacy). An argument with a fallacious argument-form may be valid (although it is not the fallacious form that makes the argument valid).

3. The distinction between object language/theory and metalanguage/-theory does not solve the problem simpliciter. It only pushes the question one step further, from the justification of a theory to the justification of a meta-theory.

4. Methodological pragmatism does not necessarily lead to a philosophical position which may be termed metaphysical or ontological relativism.

5. Should we not more correctly choose to say that philosophy can be treated as methodology rather than saying that philosophy is methodology? Here we come to the "paradoxical" nature of the limit of our rationality, and hence the perplexing character of the upper-bound of our chain of justification (or the Gordian-knot center of our network of vindication). We might say that it is our proposal to take philosophy as methodology, and it is our "personal" (inter-personal?) commitment that make philosophy methodology, the methodology of the highest order or in the ultimate generality.

   In this connection, it is to be noted that the methodology of methodology is itself a methodology (we should not fall into the temptation of coining the word 'meta-methodology'), and meta-philosophy (an existing term!) is itself philosophy. There is a "dialectical" development here inherent in the evolution of philosophy and human rationality (in contrast to machine "rationality", for instance) and, shall we not also say, human nature, too?

   To put it otherwise, when we begin to touch upon the ultimacy, we move from discursive dialogue to reflective monologue, from (mutual) criticism to self-criticism, and from argumentation to justify to reasoning in self-searching and self-forming. The process repeats over and over again. That is the evolutionary "pilgrimage" of our methodology, rationality and humanity.